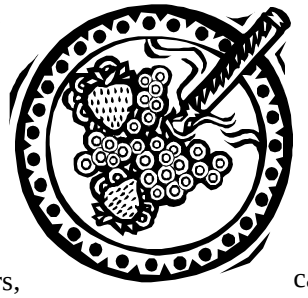
Increasing Fiber in Cereals and Snacks

Americans average only about 15 grams a day of dietary fiber, even though the recommended intake is 20 to 35 grams. Studies suggest that adequate fiber can decrease the risk of heart disease, some cancers, diabetes, and high blood pressure. One easy way to increase the general population's fiber intake might be to add it to favorite snack foods, which now contain less than 3 percent fiber.



Until now, adding plant fiber during the extrusion process by which many cereals and snacks are formed has caused undesirable textural changes. But by adding dairy proteins such as whey or casein as binders, ingredients hold together better, making for a more acceptable product that may eventually contain as much as 10 percent fiber. Other work is testing use of milk protein to envelop fibers and keep them from soaking up water when used in foods. Reducing water-holding capacity of fiber can improve food quality. *Charles I. Onwulata, USDA-ARS Dairy Products Research Unit, Wyndmoor, Pennsylvania; phone (215) 233-6497, e-mail conwulata@arserrc.gov.*

Consumers Respond to Low-Fat Foods

Ideally, dietary intake of fat should be less than 30 percent of total calories. To help consumers meet that goal, food processors have developed many low-fat products for the marketplace. Researchers wondered if having access to such products has a beneficial effect on consumers' total fat intake. To find out, they analyzed data from the 1996 USDA nationwide food consumption survey. They divided a sample of 1,731 adults into two groups: those who met the recommendation and those who exceeded it.

Most adults who exceeded the recommended fat intake either didn't consume low-fat foods on the survey day or ate only one or two. Just a few ate three or more such foods. These folks got too many calories from fat in their total diets. A few of the others who met the fat recommendations tended to substitute carbohydrates and sugars from carbonated sodas for the fat they eliminated.

Among the group that met the recommended fat intake level, a larger percentage consumed low-fat foods, suggesting that these foods can help reduce fat intake. Those who consumed low-fat foods generally enjoyed a more varied and nutritious diet than those who did not. And the greater variety led to more desirable levels of key nutrients, such as vitamin A, carotene, folate, calcium, and iron. This group also consumed fewer calories—400 to 500 calories less on average—than those who exceeded the recommended fat intake. And their body mass index tended to be lower, especially among women. *Shanthy Bowman, USDA-ARS Community Nutrition Research Group, Beltsville, Maryland; phone (301) 504-0619, e-mail sbowman@rbhnrc.usda.gov.*

Keeping Manure Nutrients Down on the Farm

Crop plants can take up and use nitrogen and phosphorus in manure that's spread on farmland. But if too much manure is applied, excess nutrients can cause environmental problems.

Increased animal production and dwindling cropland often result in overapplication of manure. And manure loses usefulness as fertilizer when nitrogen in it volatilizes into the atmosphere as ammonia. This nitrogen loss reduces the nitrogen-to-phosphorus ratio in the manure, which can cause undesirable increases of phosphorus in soil. Limiting ammonia losses from manure would create better nitrogen-to-phosphorus ratios for farm crops.

Researchers have found that adding 2.5 percent alum or 6.25 percent zeolite, by wet weight, to dairy manure slurry reduced ammonia loss by 60 and 55 percent, respectively. The alum acts as an acidifying agent, while zeolite—often used in kitty litter—acts as a sequestering agent, turning slurries into nitrogen-rich, slow-release fertilizer. Both help reduce formation of ammonia gas and offer safe and cost-effective means for managing manure. *Alan Lefcourt and John Meisinger, USDA-ARS Animal and Natural Resources Institute, Beltsville, Maryland; phone (301) 504-8450 [Lefcourt], (301) 504-5276 [Meisinger], e-mail alefcour@anri.barc.usda.gov, meisingj@anri.barc.usda.gov.*

New Cure for Sick Fish

The protozoan parasite that causes ich, or whitespot, in fish is no match for potassium permanganate. *Ichthyophthirius multifiliis* quickly succumbs even to minuscule doses—as small as 1 part per million. At least its microscopic, free-swimming stage called a theront does. After burrowing into fish skin or gills to feed on mucus and tissue, theronts grow into trophonts that create small, white pustules. The mature trophont drops off the fish and forms a cyst in which up to 1,000 theronts develop, to burst out and begin a new cycle. The entire life cycle is completed in about a week, depending on temperature.

While potassium permanganate is more costly than the copper sulfate in current use, it is less toxic to fish in soft water and also works against other fish parasites. Work is under way to develop efficacy and safety data needed to gain approval from the Food and Drug Administration for its use on edible fish. *David L. Straus and Billy R. Griffin, USDA-ARS Harry K. Dupree Stuttgart National Aquaculture Research Center, Stuttgart, Arkansas; phone (870) 673-4483, e-mail dstraus@spa.ars.usda.gov, bgriffin@spa.ars.usda.gov.*